SMD 101

H.264 STREAMING MEDIA DECODER

High Performance AV Decoding and Media Playback

- Supports live IP video stream decoding
- Supports streaming resolutions from 480x320 up to 1080p/60
- AV media file playback from network shares
- Compatible with MP4 and MPEG-2 Transport Stream container formats
- HDMI embedded audio or analog stereo outputs
- Integrated scaler offers selectable output resolutions from 640x480 to 1920x1200

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Introduction

The **SMD 101** is a compact, high performance H.264 decoder for use in AV streaming applications. It decodes live streaming content from Extron SME 100 HD and SD encoders, and supports playback of shared AV media files accessible from network attached storage. The SMD 101's advanced signal processing, network protocol options, and control features make it ideal for live streaming and media file playback in AV systems.

Extron H.264 Streaming

Extron H.264 products provide capabilities that extend beyond streaming and accessing standard audio and video signals and media files. They provide advanced signal processing, switching, streaming, and control capabilities, designed to support professional AV system requirements. Extron H.264 streaming products support a wide range of computer-video and display resolutions up to 1920x1200, and provide superior signal detection, scaling, and aspect ratio management, solving compatibility challenges that may exist for different digital and analog AV devices. A variety of streaming protocols are available to support diverse network and streaming transport requirements and multiple control options are available to meet common requirements found in AV systems. Extron H.264 streaming products are the ideal choice for professional AV system integration.

AV Media File Playback

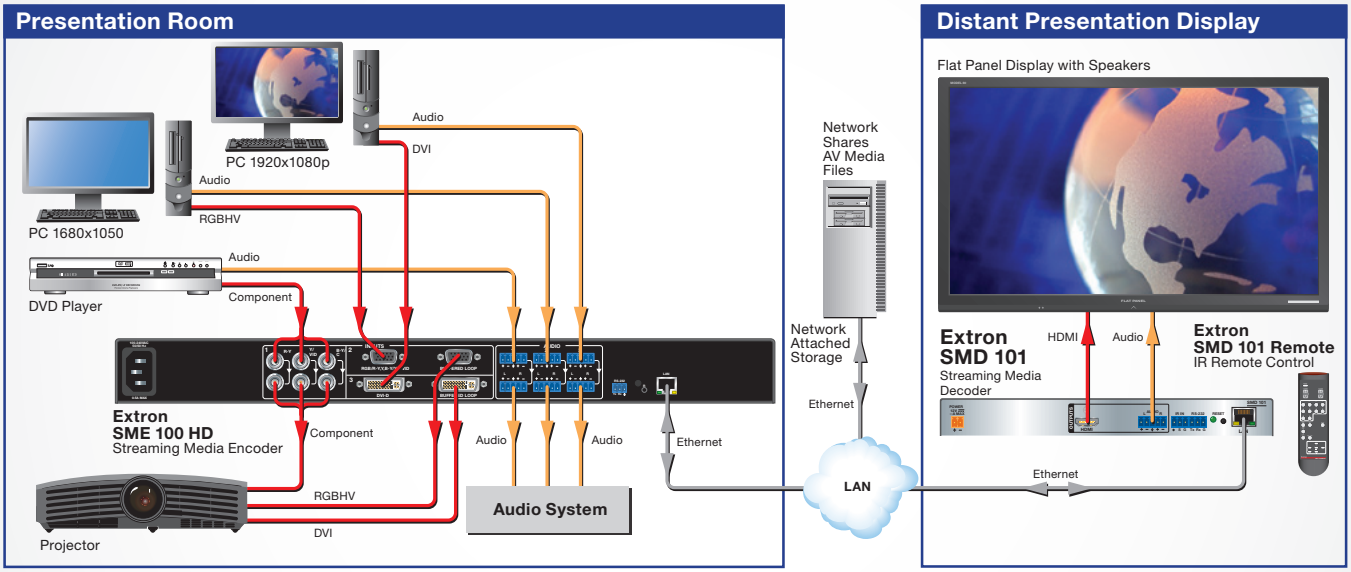
The SMD 101 can decode live streams from SME 100 encoders and play back AV media files from network-accessible storage with shared access to networked devices – network shares. Compatible AV media file container formats include MP4 and MPEG-2 Transport Streams. This feature makes the Extron SMD 101 an AV media playback device as well as a live, H.264 streaming decoder.

Simplified Streaming Integration and Operation

The SMD 101 is compatible with the full range of streaming transport protocols available from SME 100 H.264 encoders, and can operate in either unicast or multicast streaming configurations. It automatically negotiates the correct streaming transport protocol with the SME 100, simplifying system programming and operation. Both push and pull streaming methods can be deployed to support various network topology and conditions. The SMD 101 decoder includes an easy-to-navigate embedded Web interface that simplifies configuration and deployment. A number of control options are available for integrating and managing SMD 101 decoders into AV systems including IR remote, wired IR, RS-232, and Ethernet. The RS-232 port is also available for controlling an endpoint device such as a flat panel display. Decoder status reporting and on screen messaging make programming and troubleshooting activities straightforward and uncomplicated.

H.264 Streaming Applications

- High Definition Enterprise Video Systems
- Multi-Channel AV Distribution Systems
- Playback of Enterprise AV Media Assets
- High Definition Presentation Overflow Streaming
- High Resolution AV Signage Systems



The SMD 101 can decode live AV streams or play back AV media files from network shares

Overview

SMD 101

LED Device Indicators
Identify network, streaming, playback, and power status, simplifying decoder setup and troubleshooting activities

IR Remote Control
Select AV streaming channels and control audio and video outputs with the optional SMD 101 Remote

Scaled Output
Selectable output resolutions from 640x480 up to 1920x1200

SMD 101 Front

USB Configuration Port
Enables easy setup and configuration from the front panel

Extron LockIt System
Secure the HDMI connection to the SMD 101 using included Extron LockIt® cable lacing bracket

SMD 101 Back

Gigabit Ethernet Port
10/100/1000 BaseT Ethernet connection provides access to control, live streaming sources, and AV media files from network shares

Energy-Efficient Power Supply
Efficient power management generates very little heat, making it easy to optimize rack space and maintain lower operating costs

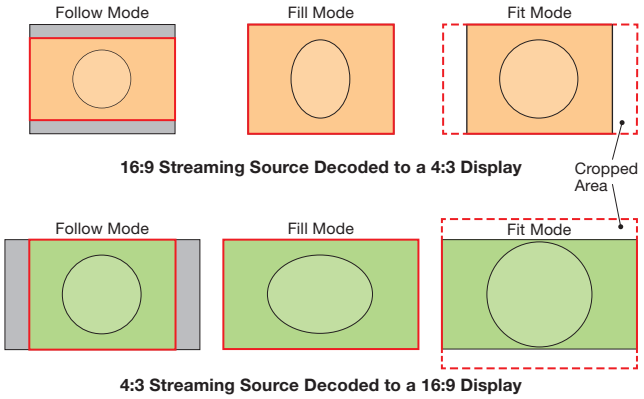
EDID Defined Scaling
The output rate and resolution can be configured for automatic selection based on EDID communication with the connected display

Analog or HDMI Audio Outputs
Provide compatibility with embedded display speakers or analog audio systems

Control Options
Flexible AV control options include wired IR, RS-232, Ethernet, and an easy to navigate embedded Web interface. RS-232 control commands can also be passed through to endpoint displays

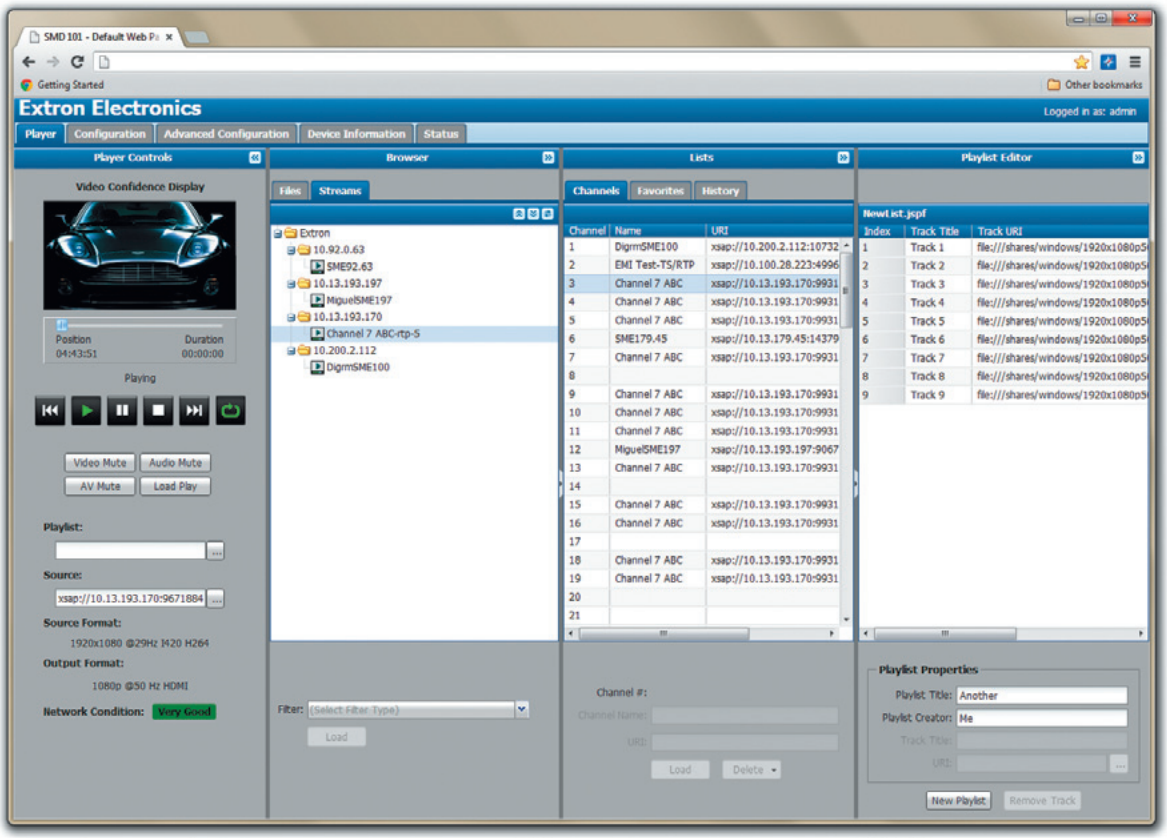
Advanced Video Processing

The SMD 101 includes advanced video processing features that provide superior quality and simplify AV integration. It scales to a wide range of refresh rates and output resolutions from 640x480 to 1920x1200. The output rate and resolution can be set to a defined resolution or automatically selected based on EDID communication with the connected display. FILL, FOLLOW, and FIT aspect ratio control options provide choices for managing AV streaming channels that do not match with a display. Video processing features such as these produce superior quality when presenting live streaming or on-demand content in AV systems.



SMD 101 provides choices for aspect ratio management when a source stream or AV media file does not match a display

Control and Management



SMD 101 embedded web page for channel list and playlist management

Control and Management

SMD 101 decoders can be managed and configured from their intuitive, easy-to-navigate embedded Web pages, which include a video confidence display window for verification of AV streaming sources. This embedded Web page clearly identifies features such as audio format, video format, resolution, user access, network, and control settings for straightforward configuration. The interface can also be used to select live AV streams or AV media files for playback. A progress bar presents the file path, position, and duration of AV media files.

Playlist and Channel Management

The SMD 101 features customizable playlists and channel lists, which simplify control and management of streaming systems. AV media files can be organized to be played back in sequence as part of a playlist and incorporated into channel lists that allow them to be selected alongside live AV streaming sources. The SMD 101 can present a specific channel or playlist on power up, and it can be configured to continuously loop a playlist or a specific AV media file.

Scalable System Deployment

Systems with many SMD 101 decoders that use common playlists and channel lists can be programmed and configured quickly and efficiently. Programmed source definition URLs and associated playlist and channel list data can be imported and exported as device configuration files. Once one SMD 101 is programmed, this configuration data can be uploaded to additional decoders, simplifying and streamlining system programming activities.

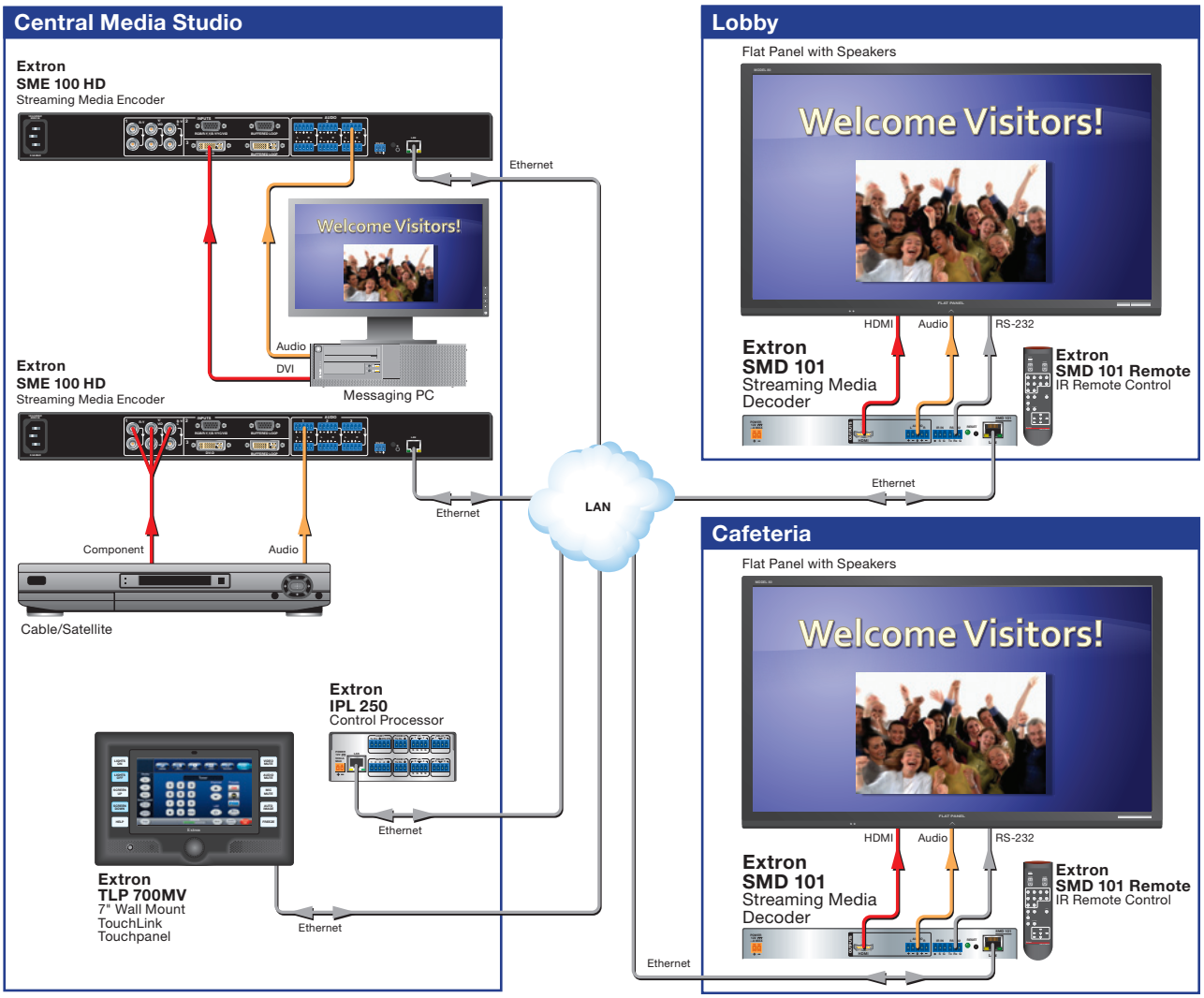
SMD 101 Remote

The optional Extron **SMD 101 Remote** handheld IR remote control is also available for use with the SMD 101. It provides basic streaming channel selection, AV media file playback control, and other basic decoder management functions. It can also be used to present a playback progress bar or decoder status information on-screen.

Applications

Multi-Channel AV Streaming at a Facility

The SMD 101 can be used to decode one of many high definition video or computer-video sources streamed across a facility network from SME 100 HD encoders. Live content can include unencrypted television broadcasts from cable tuners, corporate video presentations, or visitor messaging prepared on computers. With the hand-held SMD 101 Remote, users can independently select different AV streaming channels that are appropriate for each display. Centralized or distributed control systems can interface with SMD 101 decoders to support specific user environments and unicast or multicast push, or unicast pull streaming configurations can be applied based on network requirements. SMD 101 decoders can scale their outputs to match local display resolution, pass through RS-232 control, and deliver embedded HDMI audio directly to embedded display speakers. The combination of Extron AV source processing, control, and streaming features make Extron SME 100 and SMD 101 H.264 streaming products ideal for building multi-channel AV streaming systems.



Specifications

STREAMING INPUT

Number/signal type	1 H.264/AVC digital video and ACC audio over IP
Connectors	1 shielded RJ-45
Ethernet data rate	10/100/1000Base-T
Network file share protocols	CIFS/SMB, NFS
Container (if included)	MPG2 TS MPEG-2 part 1 (or ISO/IEC 13818-1 or ITU-T Rec. H.222.0), MP4 (including mp4, m4a, m4v file extensions)
Streaming Protocols	
Pull streams	RTP/RTCP (RFC 3550), RTSP (RFC 2326), interleaved RTSP (RTP/RTSP), RTP/RTSP tunneled through HTTP
Push streams	MPEG2-TS/UDP (ISO/IEC 13818-1), MPEG2-TS/RTP (RFC 2250), Direct RTP (RFC 3984)
Stream discovery	SAP (RFC 2974), SDP (RFC 4145, RFC 4566)
Transport	TCP, UDP, RTP multicast IGMPv3 (RFC 3376, RFC 4604) or unicast
Encoding	
Audio codec	AAC-LC (MPEG2 part 7, MPEG4 part 3, sub part 4 and part 14, MP4 audio)
Video codec	MPEG4 part 10 (AVC) H.264 BP / MP / HiP level 4.1 to 40 Mbps (1 second average)
Image file formats	BMP, JPG, PNG, TIF up to 1920x1080 (TIF files using JPEG compression are not supported)

VIDEO PROCESSING

Maximum pixel clock	165 MHz
Source rates	480p up to 1920x1080p @ 60 Hz
Source formats	Digital video, 4:2:2, 8-bit
Maximum source bitrate	40 Mbps (1 second average)
Latency	1.0 to 30.0 sec, user adjustable

VIDEO OUTPUT

Number/signal type	1 HDMI without HDCP support
Connectors	1 female HDMI type A
Output resolutions	640x480[6,8], 800x600[6,8], 1024x768[6,8], 1280x1024[6,8], 1366x768[6,8], 1600x1200[6,8], 1920x1200[6,8] HDTV 480p[7,8], 576p[6], 720p[6,7,8], 1080i[6,7,8], 1080p[1,2,3,4,5,6,7,8], [1] = at 23.98 Hz, [2] = at 24 Hz, [3] = at 25 Hz, [4] = at 29.97 Hz, [5] = 30 Hz, [6] = at 50 Hz, [7] = at 59.94 Hz, [8] = at 60 Hz
Refresh rate	23.976 Hz to 60 Hz at stated resolutions
Standards	DVI 1.0, HDMI

AUDIO PROCESSING

Gain	-6 dB unbalanced, 0 dB balanced
Frequency response	20 Hz to 20 kHz, ±0.1 dB
Bit rate	16 Kbps to 384 Kbps
Volume control	-100 dB to 0 dB (control 0-100 in 1 dB steps, default: -30 dB)

AUDIO OUTPUT — ANALOG

Number/signal type	1 stereo, balanced/unbalanced
Connectors	(1) 3.5 mm captive screw connector, 5 pole

AUDIO OUTPUT — DIGITAL

Number/signal type	1 stereo, HDMI (embedded)
Connectors	1 female HDMI type A
Bit depths	16- or 24-bit
Sampling rate	32 kHz, 44.1 kHz, 48 kHz

CONTROL/REMOTE

USB	
USB configuration ports	1 front panel female mini USB B
USB standards	USB 2.0, high/full/low speed hosts
Serial control	
Serial control port	1 bidirectional RS-232: 1 rear panel 3.5 mm captive screw connector, 3-pole
Host control	Dual mode - host control (Extron SIS) or IP to serial pass-through (for display control), both bidirectional
Baud rates	300 to 115200 baud, default: 9600
Ethernet control port	
Ethernet host port	1 female RJ-45 connector
Ethernet data rate	10/100/1000Base-T
Ethernet protocol	TCP/IP, ARP, DHCP, ICMP (ping), Telnet, HTTP, SMTP, SNMP v2c, MIB-II (RFC 3416/17/18)
IR remote control	SMD 101 remote (optional), 38 kHz
Program control	Extron Simple Instruction Set (SIS™) Extron DataViewer Microsoft® Internet Explorer®, Apple® Safari®*, Mozilla® Firefox®*, Google®* Chrome™ (*Certain browser depedencies may apply)

GENERAL

Power supply	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 1.0 A, 12 watts
Power consumption	
Device and power supply	11.0 watts, 100-240 VAC, 50-60 Hz
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, with top and side vents
Thermal dissipation	
Device and power supply	36.3 BTU/hr
Enclosure dimensions	1.0" H x 8.75" W x 6.0" D (half rack wide) (2.5 cm H x 22.2 cm W x 15.2 cm D) (Depth excludes connectors.)
Product weight	1.2 lbs (0.5 kg)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
Warranty	3 years parts and labor

Model	Version Description	Part number
SMD 101	H.264 Decoder	60-1305-01
SMD 101 Remote	Handheld IR Remote Control for SMD 101	70-1058-01

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

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